# APPMS Test and Evaluation Plan

## Purpose of the Test Plan

The success of the testing process is dependent on comprehensive test plans, user participation, and the proper analysis of the test results. The Test and Evaluation Master Plan (TEMP) for the Automated Personal Property Management System (APPMS) is written to document the activities needed to achieve the success of the testing process. The TEMP will fulfill the following objectives:

- Provide guidance for the management and technical effort necessary throughout the test and evaluation period.

- Establish a comprehensive test plan and communicate the nature and extent of the tests deemed necessary to provide a basis for evaluation of the system.

- Coordinate an orderly schedule of events, a specification of equipment and organizational requirements, the methodology of testing, a list of materials to be delivered, and a schedule of user orientation.

- Provide a written record of the actual test inputs to exercise system limits and critical capabilities, the instructions to permit execution of tests, and the expected outputs.

The TEMP is a living document that will be updated through development and testing phases to reflect procedures and results of testing and evaluation of APPMS.

The Project Manager performed formal and informal in-process reviews to ensure the quality of APPMS products. Reviews were performed to ensure that all configuration items meet the requirements defined and that the documentation for APPMS described it accurately and adequately.

## References

The following regulations provided guidelines for developing the TEMP: AR 70-1, AR 25-1, DOD-STD 8120.2, DA PAM 73-7, and AR 380-19.

## Development Test Activity

Developmental Testing is performed to prove the system is being developed correctly, design risks are being minimized, and the system will meet specifications. Developmental Testing will be planned, conducted, and monitored by the APPMS development team. The results of

testing will be reported to the APPMS Program Manager throughout the testing process.

Developmental Testing consists of activities performed during the Software Developmental Testing and Software Qualification Testing discussed in the following subparagraphs.

## Software Test Activities

The Software Developmental Testing (SDT) is performed by the APPMS development team during the development process. There are several levels of test activities that will be accomplished during this phase of testing.

The initial testing activity in the development process is the review of procedures performed. This review is done by the programmers involved in the system development. Each unit of code will be tested by the original developer of the code and then by a peer programmer. This form of peer reviews helps to ensure the units are developed according to the design specifications and identify potential problems early. The peer review testing will not require formal test plans to be developed. This testing will continue throughout the entire development process.

After the units of code have successfully completed peer review testing, they are passed along for structural testing. The structural testing takes into account the internal mechanism of a system or component in order to test all combinations of decision points, paths, and executable statements. This testing will continue throughout the entire development process. The results of these tests will be documented in order to determine the depth of testing performed on the system.

In-house functional testing will also be performed on the system throughout development. This testing will be performed to ensure the functional and system interface requirements are being met. These SDT activities will be performed by the APPMS development team for unit testing, integration testing and full system testing prior to approving the software for the next levels of testing. Retesting will be performed if changes are made.

### Software Qualification Testing

The Software Qualification Testing (SQT) will require testing by individuals other than the APPMS development team. These individuals must have prior functional knowledge of the APPMS effort in order to minimize orientation activities during SQT. Selected APPMS personnel and locations will perform SQT for APPMS during the development phase.

### Operational Test Activities

Operational Testing will be conducted to evaluate the effectiveness and suitability of APPMS

in an operational environment. Operational testing will be performed by personnel of the type and qualifications identified as the end user of the APPMS system. All testing will be performed on the target configuration of the client and/or the server.

**Test Plan**

System Description
Background

The current system does not incorporate modern technology. The old APPMS 5.0 is a software package written in FoxPro, and executed on a LAN or stand-alone PC.. It is currently fielded at each Lab, Center, District, and Division that CEFMS is deployed. APPMS 5.0 is used to satisfy property book accounting requirement as outlined in AR 710-2 and 735-5. It was interfaced with CEFMS to provide financial accountability of those assets meeting the capitilization criteria.  This feature makes the system CFO compliant.

The purpose of APPMS is to provide property management to enable managers to supervise, manage, advise, and perform specialized supply management functions which include authorization, acquisition, distribution, financing, storage, issuance, manage formal property accounting (subsidiary accounts of the financial general ledger), reutilization, utilization, recycling, and disposal of property. The mission area expands during Presidential declared emergencies, often to support Federal Emergency Management Agency (FEMA), and domestic or foreign military support when assigned by the Army.

Regulations requiring property accountability:  ER:700-1-1, AR 735, AR 710, DA PAM 710-2-1, CFO Act

Data contained within APPMS 5.0 is mapped to the Corps Data Model for integration with and use by other corporate automated information systems (AISs). The data model of APPMS 6.0 (Oracle version) can be found at:

http:\\www.hq.usace.army.mil\celd\appmsdata.pdf

APPMS 6.0 will also facilitate upward reporting as it will be accessible in Oracle tables through the CEAP network.

APPMS addresses the following business functions:

- Process Acquisitions
- Receive and approve property

- Delegate receiving agents.
- Reutilization, utilization, recycling, and disposal of property
- Property Planning: Supports all property-related planning tasks.
- Data Exchange to Corporate System - APPMS will operate with Corps of Engineers Financial Management System (CEFMS) share essential data critical to the management of property.

## Hardware/Software Requirements

| HARDWARE | SOFTWARE | CONNECTION |
|---|---|---|
| **Client:**<br><br>300 Mhz CPU<br>32MB RAM<br>100 MB Disk Space<br>NIC | Windows 95/98 or NT 4.X<br>Internet Browser (Internet Explorer 4.X or Netscape 4.X)<br>JInitiator.exe (1.1.7.11)<br>Winsig<br>TCP/IP software | Connection to CEAP Network |
| **Server**:<br><br>Sun 4000<br>Quad Processors<br>500 MB Disk Space | 2.6 Solaris (Unix**)**         Oracle Developer 2000 2.1<br>Forms 5.0 and Reports 3.0 - Oracle 7<br>Oracle Web Application server 4.x<br>Tablespace name:   appms<br>size:     300M          Initial:     50K<br>next:     50K          Pct_increase: 1<br>Tablespace index name:   appms_idx for indexes<br><br>create user appms with default tablespace appms | Connection to CEAP Network |
| | | |

## Testing Schedule

As APPMS 6.0 is developed it is tested locally by contractors and functionals.  Once this initial testing and debugging has been completed, it is then forwarded to the CEFMS Development Team for further tests.  The software is tested using rmf22.usace.army.mil test bed.

### *Testing Location Equipment Requirements*

Hardware and Software used for testing is as shown above under **Hardware and Software Requirements.**

## *Test Specification and Evaluation*

### *System Functions*

The final phase of testing and part of the test program, includes tests performed by the CEFMS Development Team.  The CEFMS Development Team  will test the system using the CEFMS Test Bed (rmf22.usace.army.mil).  Results of this test will be analyzed to determine which areas of APPMS need to be changed or enhanced.  APPMS will be deployed incrementally and a Help Desk will be manned to answer any questions or fix problems that might develop.

As the sites are converted to the new system, a copy of the old system (APPMS 5.0) will be kept so that the user can be restored to his old system if the new one fails.

The CEFMS Development Team will be used to determine if the software meets the functional requirements.  In addition, APPMS will be tested in the following areas:

- Functional End User Testing - Test the system's ability to satisfy the operational and performance requirements.

- Security and Business Control Audits - Test the system's ability to effectively control user access and to ensure data integrity.

- Volume Stress Testing - Test the system's ability to operate effectively in a real-world environment of coexisting systems.

- System Interface Testing - Test the system's ability to interface with other CEFMS.

- Recovery Testing - Test the system's ability to recover from both client and server failures as well as data loss attributed to hardware of software failure.

Upon the successful completion, the APPMS system will be ready for full deployment.

## Testing Documentation

The proper documentation of the tests performed are vital to the success of the testing and reworking process.  For each activity, the requirements to be tested will be defined, a methodology to test each requirement will be completed, and the results of the testing will be reported.

**Test & Evaluation Team**

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|---|---|---|
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